

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Amendment of the Commission's Rules to	)	WT Docket No. 04-435
Facilitate the Use of Cellular Telephones and	)	
other Wireless Devices Aboard Airborne Aircraft	)	

**RESPONSE TO NOTICE OF PROPOSED RULEMAKING  
BY  
HONEYWELL INTERNATIONAL, INC.**

May 24, 2005

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## **I INTRODUCTION**

Honeywell International, Inc., a major manufacturer of aerospace electronic systems for all classes of aircraft is pleased to submit these comments in response to FCC Notice of Proposed Rulemaking (NPRM) WT Docket 04-435, *Amendment of the Commission's Rules to Facilitate the Use of Cellular Telephones and other Wireless Devices Aboard Airborne Aircraft*.

### **A Honeywell Background**

Honeywell Aerospace Electronic Systems (AES) is one of three strategic business units of the larger Honeywell Aerospace business enterprise. Honeywell AES provides advanced electronics and avionics for large and regional air transport, business and general aviation aircraft, military aircraft and surface vehicles, and defense and space systems. Honeywell AES products include a wide range of avionics systems, including flight safety systems; communication, navigation and surveillance systems; integrated systems; flight management systems, cockpit display systems, data management and aircraft performance monitoring systems; vehicle management systems, and inertial sensor systems for guidance, stabilization, navigation and control; aircraft interior and exterior lighting. All of these systems include sensitive electronics which could be affected by the operation of intentionally transmitting portable electronic devices – including cell phones – while in flight. Therefore, Honeywell has a significant interest in the subject of the current NPRM.

### **B Summary of Honeywell position regarding NPRM WT 04-435**

As a general matter, Honeywell supports the development of pico cell technology that would enable passengers to operate mobile phones and related consumer devices on airborne aircraft while minimizing the power radiated from such devices. Consequently we support the broad intent of the current NPRM. We *do not* support the use of mobile phones *without* pico cell control due to the risks posed by interference to safety-critical communications, navigation, and surveillance equipment that is crucial to the safe and regular operation of the aircraft.

Our support for the NPRM is conditioned on additional FCC rule-making on the matter of spurious and out-of-band emissions by the portable devices. As a leader in the production, installation and certification of aircraft systems and subsystems, Honeywell is well aware that final approval of on-board operation of any device, including cellular phones or other mobile communication technology, is the responsibility of the FAA. We are active participants in the efforts of RTCA Special Committee 202 (SC-202) to provide guidance on the use of intentionally transmitting devices to the FAA under the Federal Advisory Committee Act. We urge that the FCC promulgate rules that would

facilitate such future approval by the FAA. This is of special concern insofar as rules regarding out-of-band or spurious emissions of intentionally transmitting portable electronic devices are concerned.

Application of the process defined by the Phase 1 efforts of SC-202, as documented in RTCA DO-294 [1, Section 2 and Section 6], shows that in many cases, the spurious and out-of-band emissions limits imposed by FCC rules in Part 15<sup>1</sup>, Part 22, Part 24, Part 27, and Part 90 are insufficient to facilitate such FAA approval. Therefore, the mere fact of compliance with the applicable FCC rules is not, in itself, sufficient evidence to assure that the use of such devices will not adversely affect sensitive avionics, including radios used for flight-critical communication, navigation and surveillance functions. Measured data submitted to SC-202 from a wide variety of sources [2-4] suggests that the emissions performance of current cellular phone technology is far better than the limits contained in Part 15, Part 22, Part 24, Part 27, and Part 90.<sup>2,3</sup> This measured data leads to the conclusion that the existing rules could be substantially tightened without adverse affect on manufacturers. Furthermore, any argument that tighter emission limits would pose a threat to the development of future advanced technologies is, in itself, an argument that such technologies would *not* provide the protection necessary for airborne use, and therefore would impede FAA approval of their use while in flight.

Failure to consider appropriate additional restrictions in the spurious emissions of Part 15, Part 22, Part 24, Part 27, and Part 90 devices would not change the *status quo* and would not facilitate the increased service to the public. Therefore, failure to adopt more restrictive emissions limits for Part 15, Part 22, Part 24, Part 27, and Part 90 would not accomplish the stated purpose of the NPRM.

We note one potential overall problem with approval of airborne use under pico cell control. Once the traveling public becomes accustomed to having service (under pico cell control) they will expect such service at all times. It will be difficult if not impossible to limit the attempted use of mobile phones, even on aircraft that are not equipped with pico cells. Such use, of course, will result in attempts to register with the terrestrial network, at handheld transmit power levels significantly above those occurring under pico cell control. This poses issues with both terrestrial traffic and with potential interference to on-board avionics.

## II DISCUSSION

Our discussion of the NPRM is focused on sixteen specific questions raised in the NPRM.

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<sup>1</sup> We include Part 15 in our discussions, because many "cell phone" devices are now, or will shortly, include wireless technology, e.g., Bluetooth or 802.11, where the spurious emissions are subject to Part 15.

<sup>2</sup> For example, Figure 5 of [4] show a minimum of 25 dB *below* the emissions requirements of Section 22.917 in the 960-1215 MHz band, with emissions 57 dB to 75 dB below 22.917 requirements in bands below 1 GHz.

<sup>3</sup> Proprietary data collected on behalf of the Aeronautical Data Systems Institute supports this claim. Honeywell expects that such data will be published by the fourth quarter of calendar year 2005.

**A On the use of 800 MHz handsets operating under the control of a pico cell that directs the handsets to operate at or near their lowest applicable power settings.**

Honeywell supports modification of the current Part 22 rules to allow the use of 800 MHz handsets operating under the control of a pico cell, subject to certain additional constraints to be embodied in the Part 22 rules. In particular, Honeywell supports the pico cell operation only if the out-of-band emissions limits of Section 22.917<sup>4</sup> are revised to significantly lower limits. Our recommendations for limits on spurious emissions are shown Table 1. We further recommend that any rulemaking to impose these, or similar, emission limits clearly specify whether these limits are to be satisfied with the mobile device transmitting at *maximum* power permitted by the relevant rule or at the *maximum power permitted under pico cell control*.<sup>5</sup>

**Table 1 Suggested Spurious Emissions Levels for Part 22, 24, 27, and 90 Devices**

Frequency Range (note 2)	Radiated Electric Field (rms volts)	Measurement Bandwidth
1 MHz < $f \leq 25$ MHz	$(-4.558\log_{10}(f) + 41.372)$ dB $\mu$ V/m @ 1 m	1 kHz
25 MHz < $f \leq 100$ MHz	$(15.965\log_{10}(f) + 12.682)$ dB $\mu$ V/m @ 1 m	10 kHz
100 MHz < $f \leq 150$ MHz	34 dB $\mu$ V/m @ 1 m	100 kHz
150 MHz < $f \leq 960$ MHz (note 1)	$(15.965\log_{10}(f) + 12.682)$ dB $\mu$ V/m @ 1 m	100 kHz
960 MHz < $f \leq 1700$ MHz	$(15.965\log_{10}(f) + 2.682)$ dB $\mu$ V/m @ 1 m	1 MHz
1700 MHz < $f \leq 6000$ MHz	$(15.965\log_{10}(f) + 12.682)$ dB $\mu$ V/m @ 1 m	1 MHz

Notes :

1. Table 1 emission limits apply only to spurious emissions, i.e. undesired emissions outside of the authorized band of operation of the device.
2.  $f$  is measured in MHz.

Honeywell recognizes that the values in Table 1 are far lower than the current allowance of Section 22.917, which is equivalent to +91.8 dB $\mu$ V/m (rms). Nevertheless, we believe that these recommended values are appropriate for use on-board aircraft and that they are readily achievable by current mobile telephony devices. Extensive measurements on such devices [2-4] confirm that a wide ensemble of current devices satisfy the requirements of DO-160D, Category M equipment [5], upon which Table 1 values are based. The measured data indicates that current technology satisfies these limits with significant production margin. Therefore, Honeywell suggests that imposition of such limits would not impose a burden on current manufacturers of 800 MHz handheld devices.

<sup>4</sup> Sec. 22.917 "...a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB". Using the conversion of ITU-R PN.525-2, this is equivalent to  $-43$  dBW =  $-13$  dBm =  $+91.8$  dB $\mu$ V/m (rms) =  $+94.8$  dB $\mu$ V/m (peak).

<sup>5</sup> It is clearly more difficult to satisfy a stringent emissions requirement when operating at the maximum power permitted by the Rule (in this case Part 22) than when operating at the maximum power permitted by the pico cell. However, it is necessary to provide clarity as to *which* condition is the real requirement, as we expect the two conditions to have significantly different effects on eventual FAA certification requirements for the pico cells.

Honeywell further notes that the recommended change in spurious emissions must be applicable to *all* Part 22 devices. That is, we oppose any action by the Commission to create separate class of "aircraft approved" Part 22 devices that would be subject to the more stringent requirements of Table 1. We believe that such a designation is unworkable from a human factors point of view. Creation of multiple classes of Part 22 devices will impose an unreasonable enforcement burden on cabin crewmembers. Inevitably, devices complying with a more lenient standard will be indistinguishable from the "aircraft approved" devices. Such devices will inevitably be operated onboard aircraft, posing a potential risk to safe operation of the aircraft. As a consequence, we believe any "multiple class" distinction within Part 22 would not facilitate eventual FAA approval of Part 22 device operation or FAA certification of associated pico cell.

#### **B Should such permission apply only to Part 22 (devices)?**

Honeywell believes that any such permission should not be limited to only Part 22 devices. We believe that any such action by the Commission to impose separate, more stringent requirements on Part 22 devices than on other, essentially indistinguishable devices operating under Part 24, Part 27, Part 90, or Part 15 is unworkable from a human factors point of view. That is, creation of multiple classes of indistinguishable devices with different spurious emissions performance as allowed by different FCC rules will impose an unreasonable enforcement burden on cabin crewmembers. As a consequence, we believe any "multiple class" distinction between Part 15, Part 22, Part 24, and Part 90 devices would not facilitate eventual FAA approval mobile device operation while airborne, or FAA certification of associated pico cell. Therefore, Honeywell recommends that a consistent set of rules be promulgated across all Part 22, Part 24, Part 27, Part 90 devices, as well as applicable Part 15 devices.

This recommendation is discussed further in subsequent paragraphs of this response.

#### **C Should such permission apply to Part 24 (devices)?**

Honeywell believes that such permission should apply to Part 24 as well as Part 22 devices, subject to the same emissions limits summarized in Table 1. We believe that additional Part 24 rules on emissions should be exactly consistent with the equivalent Part 22 rules. We oppose creation of separate classes for Part 24 devices that would be permitted to operate on aircraft for the same reasons given above in our discussion of Part 22. We oppose the creation of emissions limits for Part 24 devices that differ from those established for Part 22 devices.

#### **D Should such permission apply to Part 27 (devices)?**

Honeywell believes that such permission should apply to Part 27 as well as Part 22 devices, subject to the same emissions limits summarized in Table 1. We believe that

additional Part 27 rules on emissions should be exactly consistent with the equivalent Part 22 rules. We oppose creation of separate classes for Part 27 devices that would be permitted to operate on aircraft for the same reasons given above in our discussion of Part 22. We oppose the creation of emissions limits for Part 27 devices that differ from those established for Part 22 devices.

**E Should such permission apply to Part 90 (devices)?**

Honeywell believes that such permission should apply to Part 90 as well as Part 22 devices, subject to the same emissions limits summarized in Table 1. We believe that additional Part 90 rules on emissions should be exactly consistent with the equivalent Part 22 rules. We oppose creation of separate classes for Part 90 devices that would be permitted to operate on aircraft for the same reasons given above in our discussion of Part 22. We oppose the creation of emissions limits for Part 90 devices that differ from those established for Part 22 devices.

**F How could the 800 MHz cellular spectrum could be used to provide a communications “pipe” between airborne aircraft and the ground?**

Honeywell is not opposed to such use of the 800 MHz cellular spectrum, provided that any rules governing such use adequately protect aeronautical CNS systems operating in the nearby 960-1215 MHz band, as well as the very sensitive CNS systems operating in the 108-137 MHz and 328-336 MHz bands and satellite navigation systems in the 1565-1610 MHz band. One means of achieving this protection would be to limit radiated spurious emissions from the air-to-ground transmitter to a level 10 decibels below the limits of Table 1. This would correspond to the most stringent requirements of DO-160D, Category H. These requirements are applicable to equipment that "has a clear line of sight" to the antennas of on-board communication, navigation, and surveillance radios. The 800 MHz downlink antenna, which would most probably be located on the underside of the aircraft, would satisfy this criterion.

Although pico cell equipment is only beginning to be available, measured data reported to SC-202 [2, (Slide 28)] indicates that this standard is achievable with only modest additional filtering. Honeywell recognizes that such filtering may not be part of terrestrial base station technology upon which pico cell designs are based. Nevertheless we believe that any additional filtering is a reasonable constraint for safe operation of on-board systems.

In considering this issue, FCC should also consider that the use of 800 MHz as an air-to-ground link could pose a significant interference threat to on-board pico cell operation in the 800 MHz band. Thus, it may be that an 800 MHz air-to-ground link and airborne pico cells may be mutually exclusive applications. If such is the case, use of 800 MHz as an air-to-ground link would not appear to further the stated goals of the NPRM.

**G Should FCC amend its rules to allow cellular licensees to provide service on a secondary basis to airborne units subject to technical limitations aimed at preventing harmful interference to airborne and terrestrial cellular service?**

Honeywell is not a cellular service provider, and therefore has no direct comment against this suggestion. We reiterate our position that any new FCC rules should address and appropriately limit out-of-band and spurious emissions in a manner that would facilitate future FAA approval of the uses envisioned in the NPRM. We believe that the current Rules are insufficient in this regard.

**H We seek comment on whether we would need to mandate that the pico cell cover a specific set of technologies (e.g., GSM, CDMA, TDMA) so that all handsets on board aircraft are controlled by the pico cell?**

As noted earlier in our response, Honeywell supports development of a pico cell architecture. Honeywell believes that on-board pico cells must take the responsibility to control or inhibit registration requests from *all* common mobile phone technologies. The list of such technologies could potentially vary with the aircraft location. As a result, we believe that any pico cell architecture must satisfy the following two minimum requirements: 1) the architecture must quickly, unambiguously, and reliably gain control of all mobile devices operating with the technology or technologies supported by the pico cell and immediately cause them to reduce power levels to near the minimum supported by that technology; and, 2) the architecture must provide some means to inhibit the search and registration of all mobile technologies operating not supported by the pico cell so that such devices do not enter a high power search mode and attempt to register with ground stations.

We believe that the current embodiment of such architectures poses several difficulties. In particular, we are concerned that devices that accomplish the second requirement by means of raising the noise floor within the received band of the non-supported services in fact engage in the generation of intentional emissions within a licensed band. We do not believe that such intentional emissions, regardless of their level, are permitted under current FCC rules. We believe that the FCC should carefully examine such proposals, perhaps under the provisions of secondary use of the spectrum, or use of the spectrum by third parties suggested in the NPRM (see our later comments).

Honeywell would prefer to see some sort of direct control of non-supported services, perhaps by means of a modification of the service protocol.

**I On technical rules regarding the onboard operation of pico cells using 800 MHz cellular spectrum.**

As noted earlier in our response, Honeywell supports both the concept of a pico cell architecture and the on-board use of mobile devices under the control of such an

architecture, subject to certain additional limitations on spurious emissions. We have suggested levels for such emissions in Table 1. We believe that our recommended spurious emissions requirements on the mobile devices are readily achievable.

Pico cell equipment, however, will be permanently installed on aircraft and will, therefore, be subject to normal FAA approval and certification processes. We believe that the specific role of the pico cell in assuring that mobile devices do not interfere with on-board electronics is a matter for the FAA approval and certification processes, and that these processes are sufficiently thorough to account for pico cell failure modes and effects. We believe that the FAA safety requirements are far more stringent than any requirements for non-interference to terrestrial networks. Therefore, we believe that insofar as pico cell failures are concerned, the FAA certification process will more than compensate for any residual concerns of the terrestrial network operators. For this reason, we do not favor additional FCC rulemaking beyond the suggestions made elsewhere in this response regarding pico cell failure modes and effects.

We do note, however, that even a properly operating pico cell may pose an interference threat to terrestrial mobile units, especially when the aircraft is close to the ground. Therefore, we suggest that FCC consider an appropriate "height above local terrain" below which use of mobile devices will not be permitted. Such a limitation would be equivalent to today's FAA restriction on all portable electronic devices, which must remain "off and stowed" for altitudes below 10,000 feet. When the intent of such a limitation is the protection of terrestrial networks, we believe that the limitation should be appropriately established by FCC. FAA may impose additional, more stringent limits based on the safety assessment and certification process, but such limits should not be concerned with the protection of terrestrial telecommunication system.

**J On adjusting the Commission's permissible out-of-band and spurious emission limits on cellular handsets in order to ensure that aircraft systems are not affected by unwanted emission from cell phones.**

As noted in the response to A), above, Honeywell believes that any action by the FCC to remove the restriction on in-flight use of 800 MHz mobile phones without accompanying changes to *all* of the applicable rules (Part 15, Part 22, Part 24, Part 27, and Part 90) concerning out-of-band and spurious emissions by the mobile devices would not accomplish the stated intent of the NPRM. In particular, we urge the Commission to set the out-of-band and spurious emissions to the levels proposed in Table 1. As noted earlier, measured data from a variety of sources [2-4] indicate that current devices operate well below the recommended levels, therefore these modifications should not pose an unreasonable burden on the industry.

**K On the issue of who should have rights to operate on 800 MHz cellular spectrum in an airborne pico cell environment.**

Honeywell agrees that this is a key element of any plan to offer pico cell services, but for reasons that differ somewhat from those stated in the NPRM. As noted earlier, we believe that any pico cell approach must ensure that emissions from non-supported technologies be controlled at least as closely as those of the supported technology. This will require transmission – either formatted transmission or unformatted, noise-like transmission -- on the frequencies nominally assigned for the forward link of all relevant technologies. Such use is, in essence, "use by a third party" and, technically speaking a violation of the current license. On the other hand, we see such transmissions as essential for protection of both safety-critical on-board systems and the terrestrial networks of all mobile technologies.

At the same time, the extreme mobility of the host aircraft will cause airborne pico cell to fly over many license areas potentially served by many service providers on many different frequencies. Furthermore, because of air traffic control considerations, including diversions for weather and air traffic, it is not possible to exactly establish the route of flight in a manner that would facilitate pre-flight coordination with relevant terrestrial service providers. For these reasons, we believe that it will be impractical to establish exactly which service provider should have rights to the aircraft pico cell. Therefore, as a practical matter, we suggest that FCC allow a third party approach for installation and operation of the pico cell.

Failure to permit such "use by a third party" will not facilitate the use of pico cells or mobile phone technology on aircraft, and, therefore, will not accomplish the goal of the NPRM.

Toward that end, we suggest that secondary allocations are appropriate for the airborne pico cell applications. That is, the airborne pico cells will be responsible for protecting against harmful interference to terrestrial systems and the airborne systems will not be able to claim protection from interference caused by terrestrial transmission of either mobile or base station. For the purpose of this comment, we consider harmful interference to be as defined in ITU-R S1.169, namely

S1.169 Harmful interference: Interference which endangers the functioning of a radionavigation service or of other safety services or *seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service* operating in accordance with these Regulations. [emphasis added]<sup>6</sup>

One means to assure this would be for FCC to define an appropriate "height above local terrain" below which use of mobile devices will not be permitted or supported by the pico cell. That is, the pico cell would terminate all calls at this altitude.<sup>7</sup>

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<sup>6</sup> We also note that the text of S1.169 "[I]nterference which endangers the functioning of a radionavigation service" also supports our recommendations for lower spurious emissions limits for Part 15, Part 22, Part 27, and Part 90 devices.

<sup>7</sup> As a practical engineering matter, it may be necessary for a two-altitude system to be employed. The pico cell would force termination of all calls at one altitude, H1. The pico cell would maintain control of all

As with our other comments, we believe that such rules and restrictions should apply to all relevant devices, including, at a minimum Part 22, Part 24, Part 27, and Part 90.

**L On the issue of how interference protection would be provided to terrestrial operations.**

This issue is directly linked to the previous one. Because there will be a desire to maintain pico cell control of mobile phone use throughout the flight, and because pico cell control of non-supported technologies could potentially interfere with normal operation of terrestrial mobile handsets, it may be necessary for the FCC to limit operations of pico cells by altitude, in addition to any limitation on mobile device use. FAA limitations, which might arise from efforts to mitigate certain risks of interference to on-board CNS equipment in exceptionally critical phases of flight (take-off, approach landing, etc) will not and can not take protection of the terrestrial user into account. Therefore, if such protection is required, it is incumbent on FCC to require it.

Note that if pico cell operation is required to permit safe operation of aircraft radios, then the pico cell itself becomes a significant part of the aircraft safety assessment, and, consequently, as part of the operating approval for that aircraft. We believe that assessment and approval of such operations is the responsibility of the FAA, and is not a matter for FCC rulemaking.

**M On whether the pico cell proposal outlined above should apply to Part 90 operations, or some subset of Part 90 consumer equipment (such as consumer handsets operated by SMR licensees).**

There is no ability for cabin crew to distinguish between Part 22, Part 24, Part 27, and Part 90 mobile equipment. Therefore, Honeywell urges FCC to adopt a set of rules regarding airborne use that is consistent across all technologies. We envision that pico cell technology would be applicable to all such devices, both in the sense that the pico cell could support service on any (or all) protocols and signal formats, and in the sense that the pico cell would be responsible for controlling emissions from all such technologies. Such rules should, we believe, incorporate the issues raised in this response.

**N On ways that the 800 MHz cellular spectrum might be used as a communications pipe between airborne aircraft and the ground.**

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mobile phones, refusing service to all and possibly indicating that no service was available, to a lower height  $H_2 < H_1$ .

On-board antennas that service any use of the 800 MHz cellular spectrum as an air-to-ground link for aeronautical passenger communications (APC) are likely to be located within line-of-sight and relatively near to antennas for safety-critical aeronautical functions. Therefore, we suggest that the FCC carefully consider the imposition of additional spurious emissions limits 10 dB more stringent than those of Table 1 on any such device. This recommendation is consistent with the requirements of RTCA DO-160D [5, Section 21, Category H].

**O On industry-developed standards that would allow 800 MHz cellular licensees to offer airborne cellular service in accordance with a set of technical and operational limitations widely agreed to by the affected licensees.**

From the standpoint of certifying pico cell use on aircraft, we would prefer an FCC rule regarding these issues. Honeywell recognizes that industry-developed rules and standards are better than none. We note, however, that because pico cells and other such equipment would ultimately be permanently installed in an aircraft, that FAA would have ultimate approval authority, and that safety and interference concerns will be paramount in the FAA considerations. Therefore, FCC rulemaking that appropriately limited the spurious emissions of such devices would facilitate FAA approval and, ultimately, advance the goals of the NPRM.

**P We seek comment on how to quantify the effect of different types of isolation. For example, if cross-polarization isolation is employed, how much greater than 0 dBm should be allowed?**

A transmitted power level of 0 dBm within the range of frequencies assigned for normal operation under Part 22, Part 24, Part 27, or Part 90 band is probably sufficient to avoid unwarranted impact on safety critical avionics from intentional emissions created by devices operated in the cabin regardless of polarization. A spurious power level of 0 dBm is clearly insufficient for such protection regardless of polarization. As noted earlier, Honeywell believes that to accomplish the goals of the NPRM, the FCC should establish its rules in a manner that facilitates the ultimate approval by the FAA. Spurious emissions levels of 0 dBm are far too high to achieve this goal.

### **III SUMMARY AND CONCLUSIONS**

In summary, Honeywell supports the use of cellular phones on aircraft subject to the following conditions

- A Use of an on-board pico cell architecture to control the emissions of all common mobile phone technologies, including both the technologies for which service is provided *and* the technologies for which service is not provided.

- B FCC rulemaking to significantly tighten the spurious emissions limits on mobile phone devices. We have suggested limits in Table 1, and we believe that these limits are achievable by current devices with significant margin. We would accept a reasonable phase in period for the new limits and would support a "grandfather" clause for current cell phone technology. In the end, both the cell phone and aeronautical industries would benefit from the more stringent, but readily achievable limits.

We support third-party use of the cellular spectrum for on-board operation on a secondary basis. We support appropriate FCC rules to protect the terrestrial infrastructure and terrestrial users.

We support use of 800 MHz as an air-to-ground link subject to more stringent emissions limitations. We note that use of 800 MHz as an air-to-ground link may make use of 800 MHz pico cells impossible due to mutual interference. Therefore, we suggest that use of an 800 MHz air-to-ground link may not facilitate the goals of the NPRM.

Submitted May 24, 2005 on behalf of Honeywell International, Inc.

/s/ \_\_\_\_\_  
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